REMARKS

Claim Objections

In Paragraph 1 of the Office Action, the Examiner objected to claim 3 as containing a grammatical informality, withholding a rejection under §112. Attorney has corrected the informality as suggested.

Rejection of Claims 1 – 6 Under 35 U.S.C. § 103

In Paragraph 3 of the Office Action the Examiner rejects claims 1 and 4 under §103(a) as being obvious over Allen and Henning, *Vortex Induced Vibration Tests of a Flexible Smooth Cylinder at Supercrticial Reynolds Numbers,* May 1997 ("Allen Paper"). The Examiner states that Allen states that a method and system for controlling drag and vortex induced vibration, consisting of providing an ultra-smooth surface about the cylinder element of ABS® or PVC plastic having a surface roughness of k/D between 8.86×10^{-5} to 1.51×10^{-4}. The Examiner states that the paper at page 683 stated that the differences between present data and data from most of the included resources in Figure 4 are probably related to surface roughness, as is consistent in . . . from Shih et al. (1992). The Examiner then goes on to state that tests using the cylinder elements of said k/D range resulted in determining that surface roughness had an important effect on drag and VIV response of circular cylinders. Therefore the apparatus is inherently taught by the method. Attorney respectfully traverses.

As noted in the Allen Declaration, Exhibit A to the 27 August 2002 Response to Office Action, ("Allen Decl.), it is only when the strongback or support was inserted, which in itself, prohibited the test pipes from moving, was a drop in VIV evidenced. Allen Decl. ¶12. The Allen Article goes on to state that without the strongback, the cylinders exhibited "substantial vibration and increased drag due to vibrations." While the paper noted that small changes in surface roughness can have a tremendous effect on drag coefficient, significant VIV was observed in the non-strongback cases. Allen Art. at 683; Allen Decl. ¶¶12 – 15. There is nothing in the Allen Article that suggests that cylindrical bodies having smooth surfaces in the range disclosed therein reduced drag and reduced or suppressed VIV. The Examiner improperly reaches the conclusion that the reference teaches the claimed method of claims 1 and 4, when in fact the reference observes the very opposite. As such it, by nature cannot be inherent as claimed by the Examiner. *See, Crown Operations Intern. Ltd. v. Solutia, Inc.*, 289 F.3d 1367, 1377 (Fed. Cir. 2002) which states that if a limitation is inherently disclosed, it must necessarily be present and a person of ordinary skill in the art would recognize its presence. Dr. Allen's observations in the paper concerning the substantial vibrations seen by the cylindrical elements clearly goes to

the lack of recognition of inherency by one of ordinary skill in the art and teaches away from the Examiner's inherency argument. Accordingly, Attorney traverses the Examiner's rejection of claims 1 and 4.

In Paragraph 4 of the Office Action, the Examiner rejects claims 2 – 3 and 5 - 5 as obvious under the Allen Paper and U.S. Patent 4,470,722 to Gregory. Attorney respectfully traverses the rejection.

The Examiner states, with respect to claims 2 and 5, that the Allen Paper teaches all of the elements, except that the ultra-smooth surface can be a coating. Attorney respectfully disagrees. As discussed above, the Allen Paper does not teach a reduction in VIV for non-strongback cylindrical elements having smoothness in the ranges claimed. Gregory '722 suggests a cylindrical housing element having an exterior coating of fiberglass or plastic. However, the addition of Gregory '722 does nothing to overcome the lack of disclosure with respect to reducing VIV. If one were to combine Gregory '722 with the Allen Paper as suggested by the Examiner to obtain a coating with a k/D in the range claimed, Allen teaches that it would still undergo significant VIV.

Likewise, with respect to claims 3 and 6, Gregory '722 teaching of a sleeve, when combined with Allen to obtain a k/D in the claimed range, still must be examined in terms of the Allen Paper which states that it would still undergo significant VIV. As noted above, there is nothing in the cited references which suggests that a combined reduction in drag and VIV may be obtained with a k/D in the claimed range. Accordingly claims 2 – 3 and 5 – 6 are likewise patentable.

Conclusion

Attorney has addressed each and every ground for rejection and respectfully submits that the amended claims, in light of the above remarks are now in a state ready for allowance. The Examiner is invited to call the undersigned to discuss any questions or issues related to the application prior to the issuance of any written formal action.

Respectfully submitted,

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By _____

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